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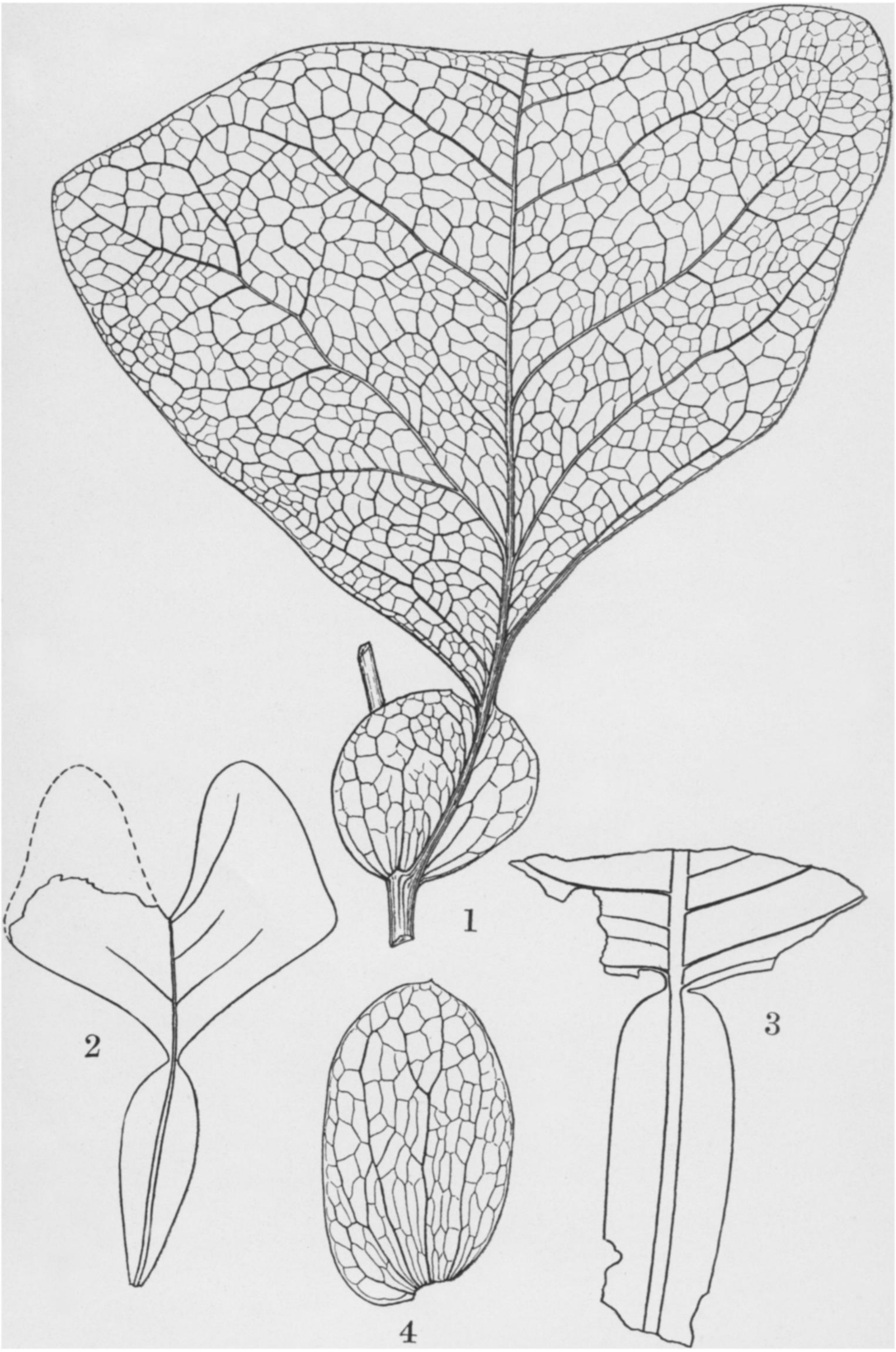
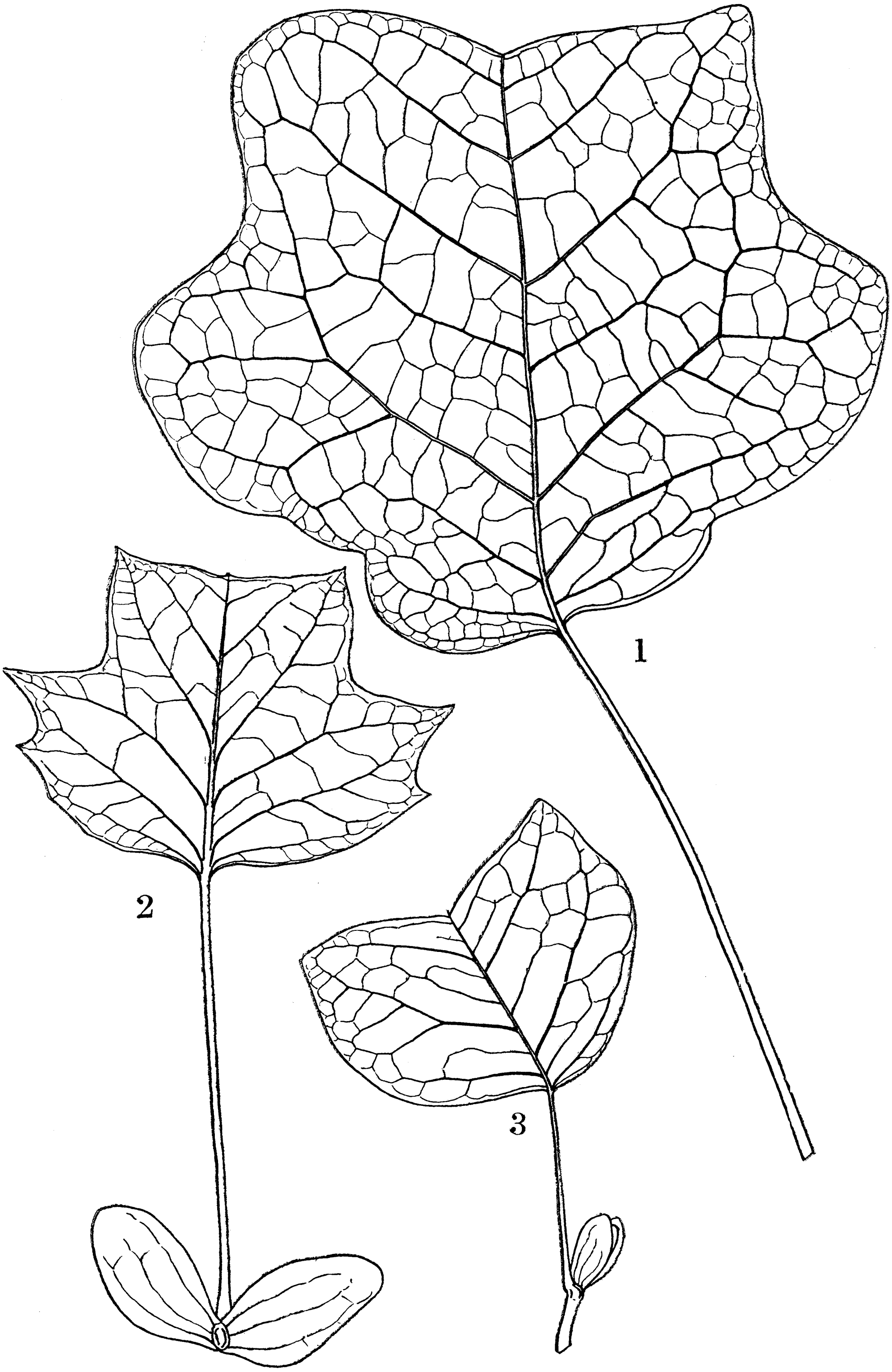


APPENDAGES TO THE PETIOLES OF LIRIODENDRON.



APPENDAGES TO THE PETIOLES OF LIRIODENDRON.

Appendages to the Petioles of Liriodendra.

By Arthur Hollick.

(Plates 269, 270.)

In a paper read some time ago before the Club and published in the Bulletin* attention was called to certain wing-like appendages on the petioles of fossil leaves considered to be allied to the living *Liriodendron Tulipifera* L. Referring to the theory advanced by Professor Lester F. Ward in regard to stipular appendages to the petioles of *Platanus*,† that they may represent former basal lobes of the leaf, which have become detached, forming first basilar appendages, then wings to the petioles, and finally stipules, I suggested that we might have a similar example in the case of *Liriodendron*. In other words, that the stipules of the living species had been derived from the wing-like appendages, which in turn had been previously derived from basal leaf lobes.

Since then a series of leaf forms of *Liriodendron* was sent to me by Mr. Edward W. Berry, of Passaic, N. J. They were collected from saplings, seedlings and new shoots from old stumps, and many of them are exceedingly interesting and significant. In the specimen to which I wish to call special attention the blade of the leaf is abnormally broad at the top and narrow at the base. The petiole is short and has broadly winged margins, which extend from the base of the petiole and connect with the base of the leaf blade. On one side there is a sharp sinus where they join, on the other merely a contraction. The nervation of each extends into the other. The question to decide is whether we have stipules adnate to the petiole and leaf blade, or portions of the leaf blade which are acting the part of stipular appendages.

The abnormal shape of the leaf is also significent, suggesting at once the fossil genus *Liriophyllum*, in which at least one species (*L. populoides* Lesq.) is known to possess winged petioles.

On plate 269, for purposes of comparison with our specimen, I have introduced a figure of this species and one which shows

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*Bull. Torr. Bot. Club, **21**: 467–471. *pl. 220, 221.* 1894.

†Proc. U. S. Nat. Mus. **11**: 39–42. *pl. 17–22.* 1888. Am. Nat. **24**: 797. 810. *pl. 28.* 1890.

the winged petiole of *Liriodendron alatum* Newb. Also a representation of a large sized stipule from a young shoot, in order to show its nervation.

On plate 270 another abnormal leaf is shown, with imperfectly formed basal lobes, the nervation of which, especially that of the one on the left-hand side, is so strikingly similar to that of the stipule as to attract attention at once. On this plate are also figures of young leaves showing normal position and arrangement of the stipules.

The figures and descriptions are submitted without further comment, largely in the hope that it may induce observers to collect and study abnormal specimens, which often give us a starting point for some important morphological investigation.

Description of Plates.

PLATE 269

Fig. 1. Abnormal leaf of *Liriodendron Tulipifera* L., showing winged appendages to the petiole, from Passaic, N. J.

Fig. 2. *Liriophyllum populoides* Lesq. (Bull. Torrey Bot. Club, *plate 221*, in part.)

Fig. 3. Winged petiole of *Liriodendron alatum* Newb. (Bull. Torrey Bot. Club, *plate 220*, in part.)

Fig. 4. Large stipule of *Liriodendron Tulipifera* L., showing nervation, from Passaic, N. J.

PLATE 270.

Fig. 1. Abnormal leaf of *Liriodendron Tulipfera* L., showing imperfect basal lobes, from Passaic, N. J.

Figs. 2, 3. Young leaves of *Liriodendron Tulipifera* L., showing normal arrangement and position of stipules, from Passaic, N. J.

Description of a supposed new Species of Fossil Wood from Montana.

BY F. H. KNOWLTON.

(PLATE 271.)

For some time the United States Geological Survey has had in preparation a Study Series of Rocks for general educational purposes, which is to contain a series of typical rocks of this country, and in 1891 I was requested to collect for this a set of 250 specimens of silicified wood. This Study Series is to be ac-